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(54) **Clip for fastening to a strip or rib**

Clip zur Befestigung an einer Leiste oder Rippe

Pince pour fixer sur une bande ou une nervure

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Description

[0001] The invention relates to a clip for fastening to a strip or a rib, in particular to a component of a motor vehicle, having a single-piece body made of plastic that has a retaining region, wherein the retaining region has a receiving slot with an insertion opening, a first and a second guide section, and at least one first locking finger that is attached to the first guide section and extends from its fastening end in the insertion direction and in the direction of the second guide section.

[0002] A clip according to the preamble of claim 1 is disclosed in US 2007/0033774 A1 and US 2002/0001502 A1. In the clips disclosed in these documents the locking finger is part of a metal insert which is fixed to a guide section. Therefore, due to the higher Young's modulus of metal, the locking finger is rather stiff and requires relatively high assembly forces for inserting a component into the retaining region,

[0003] From EP 1 211 115 B1 is known a clip of the specified type for fastening a strip, in particular a trim strip for a motor vehicle. The clip has a retaining part with a receiving slot into which obliquely projects at least one latching finger that has a latching opening at its free end. A snap-on part intended for insertion in the receiving slot has a projection with a plurality of latching tabs, which latch with a latching opening of the latching finger when the projection is inserted in the receiving slot of the retaining part. The latching finger here is designed and aligned such that it can give way to the latching tabs during insertion of the projection into the receiving slot, but prevents the snap-on part from being pulled out when the latching tabs are latched into the latching openings. In order to fasten it to a component, the retaining part has fastening apertures that studs welded onto the component engage with. The prior art clip is only suitable for snap-on parts with latching tabs or a comparable undercut.

[0004] It is also known, from DE 43 00 113 A1, to use clamps made of stainless steel to fasten mounted parts to a rib. The clamps are bent in a U-shape, and have a receiving slot into which project clamping plates with saw-tooth gripping teeth at their free ends. In this solution, the component to be fastened to the rib is provided with specially designed retaining parts inside which the clamps must be placed prior to assembly. Because of the stainless steel clamps, the prior art fastening arrangement is relatively expensive, and requires higher assembly forces as compared to fastenings with plastic clips.

[0005] In addition, a clip suitable for use in motor vehicles is known from US 7,204,000 B2, which consists of a metal clamp and a plastic body molded onto the clamp by an injection molding process, which forms posts that can be inserted into an opening and a flexible skirt. In this design, the metal clamp constitutes the main part of the clip. In addition to weight disadvantages, the cost of corrosion protection for the clamp by means of coating or the use of stainless steel is disadvantageous.

[0006] The object of the invention is to create a clip of the initially mentioned type that achieves low assembly forces and comparatively high retention forces, even in conjunction with strips or ribs that have no undercut. In addition, the clip should be corrosion-resistant and suitable for manual installation. Moreover, the clip should be economical to manufacture.

[0007] This object is attained by a clip with the features specified in claim 1. Especially advantageous embodiments of the clip are specified in the dependent claims.

[0008] According to a preferred embodiment of the invention, the clip has a single-piece body made of plastic that has a retaining region, wherein the retaining region has a receiving slot with an insertion opening, a first and a second guide section, and at least one locking finger that is attached to the first guide section and extends obliquely from its fastening end in the insertion direction and in the direction of the second guide section, wherein the first locking finger has an insert that forms a tongue projecting from the free end of the first locking finger.

[0009] The clip according to the invention combines the desirable characteristics of a plastic clip with the desirable characteristics of a metal clamp in an especially advantageous manner. The tongue of the insert, which forms the free end of the locking finger, can be made of a harder material than the clip, for example metal, and also provides high retention forces for strips or ribs having no undercut, which is to say a high resistance to pull-out of a strip or rib inserted in the receiving slot. On the other hand, the greater elasticity of the fastening of the plastic locking finger and the favorable sliding properties of the plastic advantageously permit low assembly forces, so that insertion of the strips or ribs can also be done manually. The metal content of the clip is very small. The weight of the clip is thus only negligibly greater than that of a clip made entirely of plastic, and the material costs remain low even when inserts made of stainless steel are used. The insert can have a simple shape and can be introduced into the locking finger of the clip during the molding of the clip by placement in the mold ahead of time. The insert is embedded in the plastic material of the clip except for the projecting tongue. There are thus no external sharp edges that could cause injury during installation of the clip by hand. Optimal corrosion resistance of the clip can be achieved through the use of inserts made of corrosion-resistant metal or another corrosion-resistant material, for example a plastic reinforced with glass fibers or carbon fibers.

[0010] In the clip according to the invention the first locking finger is located in an opening of the first guide section and is connected to the first guide section by elastically deformable webs. The resilience of the locking finger, and hence the assembly and retaining force, can be adapted to the applicable requirements by means of the dimensioning of the elastically deformable webs.

[0011] According to another embodiment of the invention, the elasticity of the deformable webs and their breaking strength can be favorably influenced by the means

that the insert has lateral shoulders, which extend through the webs and are embedded in regions of the first guide section adjacent to the locking finger.

[0012] According to another embodiment of the invention, provision can be made for the first and second guide sections to be connected to one another by a rear section, located opposite the insertion opening, which has a stop for limiting the depth of the receiving slot in the insertion direction.

[0013] It is especially advantageous for the stop of the rear section to be provided with multiple steps arranged in a staircase fashion whose distance from the insertion opening decreases with increasing distance from the second guide section. The end faces of the steps opposite the second guide section form supports for edge regions of strips or ribs of different thicknesses which come into contact with the stop and can prevent tilting of strips or ribs in the receiving slot, when said strips or ribs have a thickness that is less than the width of the receiving slot.

[0014] According to another embodiment of the invention, the clip can have an anchoring region with a keyhole-shaped fastening aperture for receiving a T-stud located on the support part and can have, associated with the fastening aperture, a second locking finger by which the T-stud can be held in place in the fastening aperture. A stable and easy-to-assemble anchoring of the clip to a support part is accomplished by this means.

[0015] A design of the clip is preferred in which two retaining regions are provided that are connected to one another by the anchoring region located between them. In this design, the anchoring region can connect the second guide sections of the two retaining regions, with the first guide sections being connected to one another by a web on the side of the receiving slot opposite the anchoring region.

[0016] According to another embodiment of the invention, elastic arms extending in directions that diverge and extend away from the guide sections can be located on the rear section. By means of the elastic arms, the clip can be guided during assembly and supported, free of play, against rotation about the T-stud engaging in the anchoring region. In addition, the elastic arms permit tolerance compensation in the anchoring position of the clip on the support part.

[0017] In order to anchor the insert in the first locking finger in an interlocking manner, according to another embodiment of the invention the insert can have an opening or edge recesses into which the plastic has penetrated. Moreover, to simplify manufacture of the clip, the fastening end of the locking finger can have a recess in which an edge region of the insert is exposed. By this means, the insert can be held and supported in the injection mold at the tongue and at the edge region exposed in the recess, so that the insert can be easily placed in the injection mold, precisely positioned in the injection mold, and secured against displacement during the injection molding process.

[0018] The invention is explained in detail below with

reference to exemplary embodiments that are shown in the drawings, wherein:

- Figure 1 is a view of a clip according to the invention with first guide section facing the viewer,
- Figure 2 is a view of the insertion side of the clip from Figure 1,
- Figure 3 is a view of the clip from Figure 1 with second guide section facing the viewer,
- Figure 4 is a cross-section IV - IV of the clip from Figure 1,
- Figure 5 is an end view of the clip from Figure 1,
- Figure 6 is a perspective view of the clip from Figure 1 with first guide section facing the viewer,
- Figure 7 is a cross-section VII - VII of the clip from Figure 1, and
- Figure 8 is an end view of another embodiment of a clip according to the invention.

[0019] The clip 1 shown in Figures 1 through 7 consists primarily of a body 2 made of plastic, which has an anchoring region 3 located essentially in the center and retaining regions 4, 5 on both sides of the anchoring region 3. The retaining regions 4, 5 have a U-shaped profile, which is composed of parallel first and second guide sections 41, 42 or 51, 52 and a rear section 43 or 53 connecting them. Extending between the guide sections 41, 42, 51, 52 is a receiving slot 6 with an insertion opening 7 opposite the rear sections 43, 53. The anchoring region 3 connects the second guide sections 42, 52 and delimits the receiving slot 6 and the insertion opening 7 between them. The first guide sections 41, 51 are connected together by a web 8 that delimits the insertion opening 7 between the guide sections 41, 51. Between the rear sections 43, 53 extends a rib 9 that is connected to the anchoring region 3 and has the purpose of reinforcing the body 2. The end faces of the retaining regions 4, 5 facing away from one another have end walls 44, 54, which join the guide sections 41, 42 or 51, 52 over a length corresponding to approximately half the depth of the receiving slot 6, and oppose a widening of the receiving slot 6. Molded onto the outer side of the end walls 44, 54 as an extension of the rear sections 43, 53 are elastic arms 45 and 55, which extend outward and in the direction opposite the guide sections 41, 42 at an angle of approximately 45° to the longitudinal axis of the rear sections 43, 53. The free ends of the elastic arms 45, 55 are angled, producing a larger support surface. With the aid of the spring arms 45, 55, the clip 1 can brace against a component.

[0020] The anchoring region 3 has a keyhole-shaped fastening aperture 10 with a U-shaped retaining section 11 and a lead-in section 12. The retaining section 11 has a step 13 in the shape of a semicircle, the ends of which are adjoined by lead-in ramps 14. Projecting into the lead-in section 12 is an elastic, second locking finger 15, whose end is located opposite the retaining section 11. When a T-stud is inserted head-first into the lead-in sec-

tion 12 from the back of the anchoring region 3, the locking finger 15 can be pushed out of the lead-in section 12 far enough that the head can reach the step 13 via the lead-in ramps 14 by displacement of the T-stud into the retaining section 11. As soon as the T-stud is located fully inside the retaining section 11, the locking finger 15 slides down from the head of the T-stud and springs back to its initial position in which it is located opposite the circumferential surface of the head and thereby prevents the T-stud from sliding out of the retaining section 11.

[0021] As is evident from Figure 3, a guide channel 16 extending parallel to the lead-in slot 6 is formed on the back of the anchoring region 3; said channel terminates in the lead-in section 12 of the fastening aperture 10 and narrows towards the fastening aperture 10. The guide channel 16 facilitates entry into the fastening aperture 10 of the T-stud already attached to a component.

[0022] To secure a strip or rib inserted in the receiving slot 6, the clip 1 has two first locking fingers 18, with one first locking finger 18 being located on the first guide section 41 or 51 in each retaining region 4, 5. The locking fingers 18 are each located in an opening 46 or 56 of the relevant guide section 41, 51, and are molded as a single piece with the body 2. The guide sections 42, 52 are provided on the side opposite the locking fingers 18 with a core opening 48, 58 required by molding technology. At their ends next to the insertion opening 7, the locking fingers 18 are joined to the guide sections 41, 51 by elastically deformable webs 47, 57. The spring force exerted by the locking fingers 18 during fastening of a strip can be determined by the dimensioning of the cross-section of the webs 47, 57.

[0023] Each locking finger 18 contains an insert 19 made of corrosion-resistant metal, preferably stainless steel. The insert 19 is in the shape of a rectangular plate, which is embedded for most of its length in the plastic of the locking finger 18. However, the insert 19 can also have any other desired shape, although this shape must be matched to the locking finger. In the interior of the locking finger 18, the insert has a hole 20, which is filled with plastic and has the purpose of anchoring the insert 19 in the locking finger 18. The insert 19 forms a tongue 21, which projects out of the plastic material at the free end of the locking finger 18 and obliquely into the receiving slot 6. At the free end, the tongue 21 is provided with a sharp edge. The tongue 21 extends in the insertion direction at an angle of approximately 30° to the center plane of the receiving slot 6. The end 22 of the insert 19 opposite the tongue 21 is exposed in the region of a recess 23. As a result, the insert 19 can be supported at this location in the injection mold for molding the clip 1. The projecting tongue 21 forms a second support.

[0024] Figure 8 shows a modified embodiment of a clip 31, which, aside from the features specified below, corresponds to the clip 1. The clip 31 has a receiving slot 32 of a width such that strips of greater or lesser wall thickness can be accommodated therein. While strips whose wall thickness corresponds to the width of the re-

ceiving slot, which is to say the width of its opening, can be held with sufficient stability and tilt-resistance in the receiving slot 32, this is not necessarily the case for strips with smaller wall thickness, due to the solely one-sided support on the tongues of the locking fingers 33. In order to improve the tilt-resistance of strips having a relatively small wall thickness, the rear section 34 of the clip 31 forms, on the inside facing the receiving slot 32, a stop with multiple steps 35, 36 arranged in a staircase fashion whose distance from the insertion opening 37 is proportional to their distance from the first guide section 38. The end faces of the steps 35, 36 facing the second guide section 39 each form a support for the edge regions of strips or ribs whose wall thickness is equal to or smaller than the distance between the end faces of the steps 35, 36 and the second guide section 39. As a result of this additional support, strips or ribs having a smaller wall thickness can be held in a tilt-resistant way. The number of steps and their height can be adapted to the particular requirements existing in each case with regard to the wall thickness of strips or ribs.

Claims

1. Clip for fastening to a strip or rib, in particular on a motor vehicle, having a single-piece body made of plastic that has a retaining region, wherein the retaining region has a receiving slot with an insertion opening, a first and a second guide section, and at least one first locking finger that is attached to the first guide section and extends from its fastening end in the insertion direction and in the direction of the second guide section, wherein the first locking finger (18, 33) has an insert (19) that forms a tongue (21) projecting from the free end of the first locking finger, **characterized in that** the first locking finger (18) is located in an opening (46) of the first guide section (41) and is connected to the first guide section (41) by elastically deformable webs (47).
2. Clip according to claim 1, **characterized in that** the insert (19) is made of a metal or of a plastic reinforced with glass fibers or carbon fibers.
3. Clip according to claim 2, **characterized in that** the insert (19) is made of a corrosion-resistant metal.
4. Clip according to one of the preceding claims, **characterized in that** the first and second guide sections (38, 39; 41, 42) are connected to one another by a rear section (34; 43) opposite the insertion opening (7) that constitutes a stop for limiting the depth of the receiving slot (32; 6) in the insertion direction.
5. Clip according to claim 4, **characterized in that** the rear section (34) has as a stop multiple steps (35, 36) arranged in a staircase fashion whose distance

from the insertion opening decreases with increasing distance from the second guide section (39).

6. Clip according to one of the preceding claims, **characterized in that** it has an anchoring region (3) that is designed for fastening to a component.
7. Clip according to claim 6, **characterized in that** the anchoring region (3) has a keyhole-shaped fastening aperture (10) for receiving a T-stud located on the component and has, associated with the fastening aperture (10), a second locking finger (15) for holding the T-stud in place in the fastening aperture (10).
8. Clip according to one of claims 6 or 7, **characterized in that** on the back of the anchoring region (3) is formed a guide channel (16) that extends parallel to the lead-in slot (6), terminates in the fastening aperture (10), and narrows towards the fastening aperture (10).
9. Clip according to one of claims 6 through 8, **characterized by** two retaining regions (4, 5) that are connected to one another by the anchoring region (3) located between them.
10. Clip according to claim 9, **characterized in that** both retaining regions (4, 5) have first and second guide sections (41, 42, 51, 52) and the anchoring region (3) connects the second guide sections (42, 52), and **in that** the first guide sections (41, 51) are connected by a web (8) on the side of the receiving slot (6) opposite the anchoring region (3).
11. Clip according to one of claims 4 through 10, **characterized in that** elastic arms (45, 55) extending in directions that diverge and extend away from the guide sections (41, 42, 51, 52) are located on the rear section (43, 53).
12. Clip according to one of the preceding claims, **characterized in that** it is molded in an injection molding process and the insert (19) is partially encased in plastic by the molding process.
13. Clip according to one of the preceding claims, **characterized in that** the insert (19) has an opening (20) or edge recess into which the plastic of the body (2) has penetrated.
14. Clip according to one of the preceding claims, **characterized in that** the insert (19) has lateral shoulders, which are embedded in regions of the first guide section (41, 51) adjacent to the locking finger (18).
15. Clip according to one of the preceding claims, **characterized in that** the fastening end of the locking finger (18) has a recess (23) in which an edge region

of the insert (19) opposing the tongue (21) is exposed.

5 Patentansprüche

1. Clip zur Befestigung an einer Leiste oder Rippe, insbesondere an einem Kraftfahrzeug, mit einem einteiligen Körper aus Kunststoff, der einen Haltebereich aufweist, wobei der Haltebereich einen Aufnahmeschlitz mit einer Einstecköffnung, einem ersten und einem zweiten Führungsabschnitt und wenigstens einem ersten Sperrfinger aufweist, der an dem ersten Führungsabschnitt befestigt ist und sich von seinem Befestigungsende aus in Einsteckrichtung und in Richtung des zweiten Führungsabschnitts erstreckt, wobei der erste Sperrfinger (18, 33) einen Einsatz (19) aufweist, der eine an dem freien Ende des ersten Sperrfingers herausragende Zunge (21) bildet, **dadurch gekennzeichnet, dass** der erste Sperrfinger (18) in einer Öffnung (46) des ersten Führungsabschnitts (41) angeordnet und mit dem ersten Führungsabschnitt (41) durch elastisch verformbare Stege (47) verbunden ist.
2. Clip nach Anspruch 1, **dadurch gekennzeichnet, dass** der Einsatz (19) aus einem Metall oder einem mit Glasfasern oder Kohlenstofffasern verstärkten Kunststoff besteht.
3. Clip nach Anspruch 2, **dadurch gekennzeichnet, dass** der Einsatz (19) aus einem korrosionsbeständigen Metall besteht.
4. Clip nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der erste und der zweite Führungsabschnitt (38, 39; 41, 42) durch einen der Einstecköffnung (7) gegenüberliegenden Rückenabschnitt (34; 43) miteinander verbunden sind, der einen Anschlag zur Begrenzung der Tiefe des Aufnahmeschlitzes (32; 6) in Einsteckrichtung bildet.
5. Clip nach Anspruch 4, **dadurch gekennzeichnet, dass** der Rückenabschnitt (34) als Anschlag mehrere treppenartig angeordnete Stufen (35, 36) aufweist, deren Abstand von der Einstecköffnung mit zunehmender Entfernung von dem zweiten Führungsabschnitt (39) abnimmt.
6. Clip nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** er einen Verankerungsbereich (3) aufweist, der zur Befestigung an dem Bauteil eingerichtet ist.
7. Clip nach Anspruch 6 **dadurch gekennzeichnet, dass** der Verankerungsbereich (3) eine schüssel-lochartige Befestigungsöffnung (10) zur Aufnahme

eines an dem Bauteil angeordneten T-Bolzens und einen der Befestigungsöffnung (10) zugeordneten zweiten Sperrfinger (15) zum Festhalten des T-Bolzens in der Befestigungsöffnung (10) aufweist.

8. Clip nach einem der Ansprüche 6 oder 7, **dadurch gekennzeichnet, dass** auf der Rückseite des Verankerungsbereichs (3) ein sich parallel zum Einführschlitz (6) erstreckender Führungskanal (16) ausgebildet ist, der in die Befestigungsöffnung (10) mündet und in Richtung der Befestigungsöffnung (10) verjüngt ist. 5
9. Clip nach einem der Ansprüche 6 bis 8, **gekennzeichnet durch** zwei Haltebereiche (4, 5), die **durch** den zwischen ihnen angeordneten Verankerungsbereich (3) miteinander verbunden sind. 10
10. Clip nach Anspruch 9, **dadurch gekennzeichnet, dass** beide Haltebereiche (4, 5) erste und zweite Führungsabschnitte (41, 42, 51, 52) haben und der Verankerungsbereich (3) die zweiten Führungsabschnitte (42, 52) verbindet und dass auf der dem Verankerungsbereich (3) gegenüberliegenden Seite des Aufnahmeschlitzes (6) die ersten Führungsabschnitte (41, 51) durch einen Steg (8) verbunden sind. 15
11. Clip nach einem der Ansprüche 4 bis 10, **dadurch gekennzeichnet, dass** an dem Rückenabschnitt (43, 53) Federarme (45, 55) angeordnet sind, die sich in divergierende und von den Führungsabschnitten (41, 42, 51, 52) entfernende Richtungen erstrecken. 20
12. Clip nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** er im Spritzgießverfahren geformt ist und der Einsatz (19) durch die Formung mit Kunststoff teilweise umgossen ist. 25
13. Clip nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der Einsatz (19) eine Öffnung (20) oder Randaussparung aufweist, in die der Kunststoff des Körpers (2) eingedrungen ist. 30
14. Clip nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der Einsatz (19) seitliche Ansätze aufweist, die in dem Sperrfinger (18) benachbarte Bereiche des ersten Führungsabschnitts (41, 51) eingebettet sind. 35
15. Clip nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** das Befestigende des Sperrfingers (18) eine Aussparung (23) aufweist, in welcher ein der Zunge (21) entgegengesetzter Randbereich des Einsatzes (19) frei liegt. 40

Revendications

1. Pince destinée à une fixation sur une bande ou sur une nervure, en particulier sur un véhicule à moteur, présentant un corps d'un seul tenant réalisé dans une matière plastique qui présente une région de retenue, dans laquelle la région de retenue présente une fente de réception avec une ouverture d'insertion, des première et seconde sections de guidage et au moins un premier doigt de verrouillage qui est fixé sur la première section de guidage et qui s'étend à partir de son extrémité de fixation dans la direction d'insertion et dans la direction de la seconde section de guidage, dans laquelle le premier doigt de verrouillage (18, 33) présente un insert (19) qui forme une langue (21) faisant saillie hors de l'extrémité libre du premier doigt de verrouillage, **caractérisée en ce que** le premier doigt de verrouillage (18) se situe dans une ouverture (46) de la première section de guidage (41) et est relié à la première section de guidage (41) par des bandes déformables de manière élastique (47). 5
2. Pince selon la revendication 1, **caractérisée en ce que** l'insert (19) est réalisé dans un métal ou dans une matière plastique renforcée par des fibres de verre ou par des fibres de carbone. 10
3. Pince selon la revendication 2, **caractérisée en ce que** l'insert (19) est réalisé dans un métal qui résiste à la corrosion. 15
4. Pince selon l'une quelconque des revendications précédentes, **caractérisée en ce que** les première et seconde sections de guidage (38, 39 ; 41, 42) sont reliées l'une à l'autre par une section arrière (34 ; 43) opposée à l'ouverture d'insertion (7) qui constitue un arrêt destiné à limiter la profondeur de la fente de réception (32 ; 6) dans la direction d'insertion. 20
5. Pince selon la revendication 4, **caractérisée en ce que** la section arrière (34) présente de multiples marches d'arrêt (35, 36) agencées à la façon d'un escalier dont la distance à partir de l'ouverture d'insertion diminue au fur et à mesure que la distance par rapport à la seconde section de guidage (39) augmente. 25
6. Pince selon l'une quelconque des revendications précédentes, **caractérisée en ce qu'elle** présente une région d'ancrage (3) qui est conçue pour une fixation sur un composant. 30
7. Pince selon la revendication 6, **caractérisée en ce que** la région d'ancrage (3) présente une ouverture de fixation en forme de trou de serrure (10) destinée à recevoir un goujon en forme de T situé sur le composant et présente, en association avec l'ouverture de fixation (10), un second doigt de verrouillage (15) 35

destiné à maintenir en place le goujon en forme de T dans l'ouverture de fixation (10).

8. Pince selon la revendication 6 ou la revendication 7, **caractérisée en ce qu'**est formé à l'arrière de la région d'ancrage (3) un canal de guidage (16) qui s'étend parallèlement à la fente d'entrée (6), prend fin dans l'ouverture de fixation (10) et se rétrécit vers l'ouverture de fixation (10). 5
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9. Pince selon l'une quelconque des revendications 6 à 8, **caractérisée par** deux régions de retenue (4, 5) qui sont reliées l'une à l'autre par la région d'ancrage (3) située entre celles-ci. 15
10. Pince selon la revendication 9, **caractérisée en ce que** les deux régions de retenue (4, 5) présentent des premières et secondes sections de guidage (41, 42, 51, 52) et la région d'ancrage (3) relie les secondes sections de guidage (42, 52), et **en ce que** les premières sections de guidage (41, 51) sont reliées par une bande (8) sur le côté de la fente de réception (6) opposée à la région d'ancrage (3). 20
11. Pince selon l'une quelconque des revendications 4 à 10, **caractérisée en ce que** des bras élastiques (45, 55) qui s'étendent dans des directions qui divergent et qui s'étendent en s'éloignant des sections de guidage (41, 42, 51, 52), se situent sur la section arrière (43, 53). 25
30
12. Pince selon l'une quelconque des revendications précédentes, **caractérisée en ce qu'**elle est moulée selon un procédé de moulage par injection et **en ce que** l'insert (19) est enrobé en partie de matière plastique par le procédé de moulage. 35
13. Pince selon l'une quelconque des revendications précédentes, **caractérisée en ce que** l'insert (19) présente une ouverture (20) ou un renforcement du bord dans lequel a pénétré la matière plastique du corps (2). 40
14. Pince selon l'une quelconque des revendications précédentes, **caractérisée en ce que** l'insert (19) présente des épaulements latéraux qui sont enfouis dans des régions de la première section de guidage (41, 51) adjacentes au doigt de verrouillage (18). 45
15. Pince selon l'une quelconque des revendications précédentes, **caractérisée en ce que** l'extrémité de fixation du doigt de verrouillage (18) présente un renforcement (23) dans lequel est exposée une région de bord de l'insert (19) opposée à la langue (21). 50
55

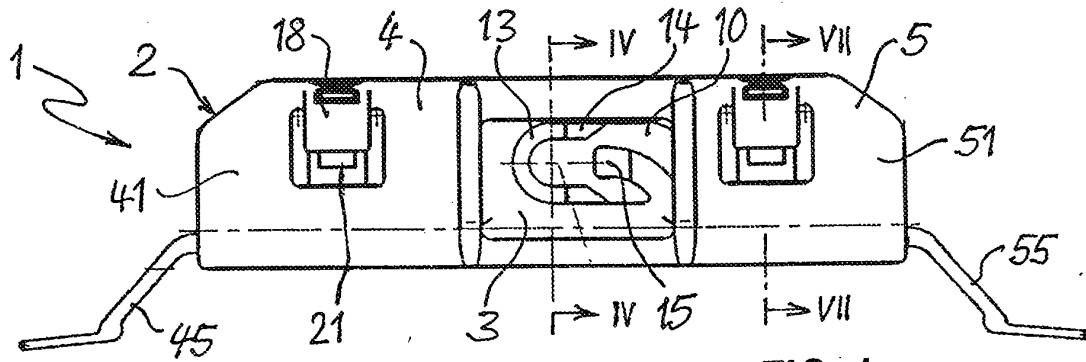


FIG. 1

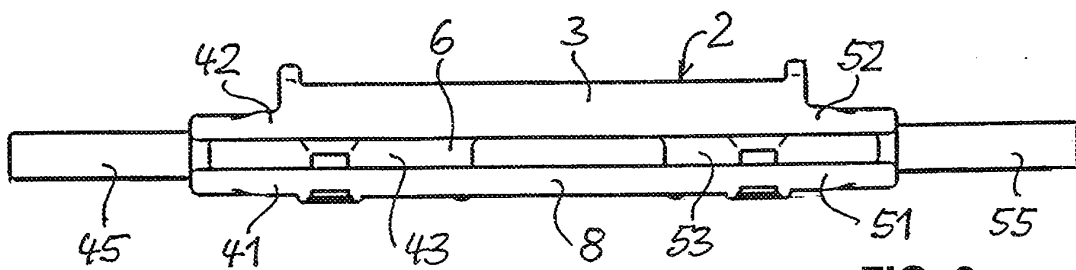


FIG. 2

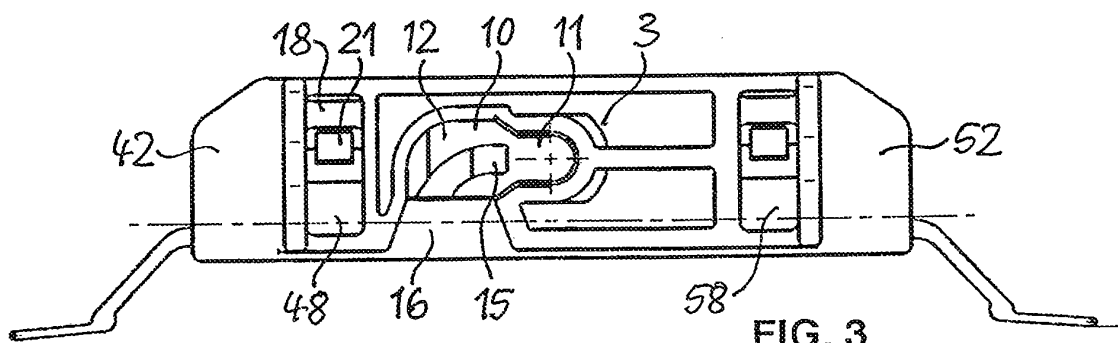


FIG. 3

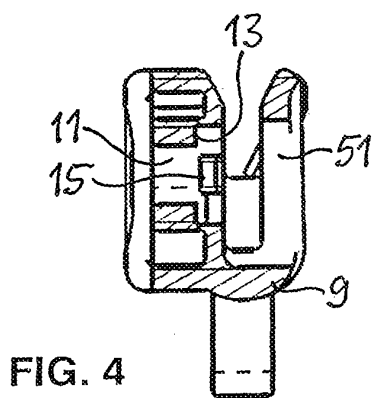


FIG. 4

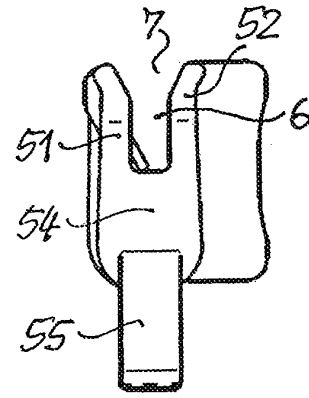


FIG. 5

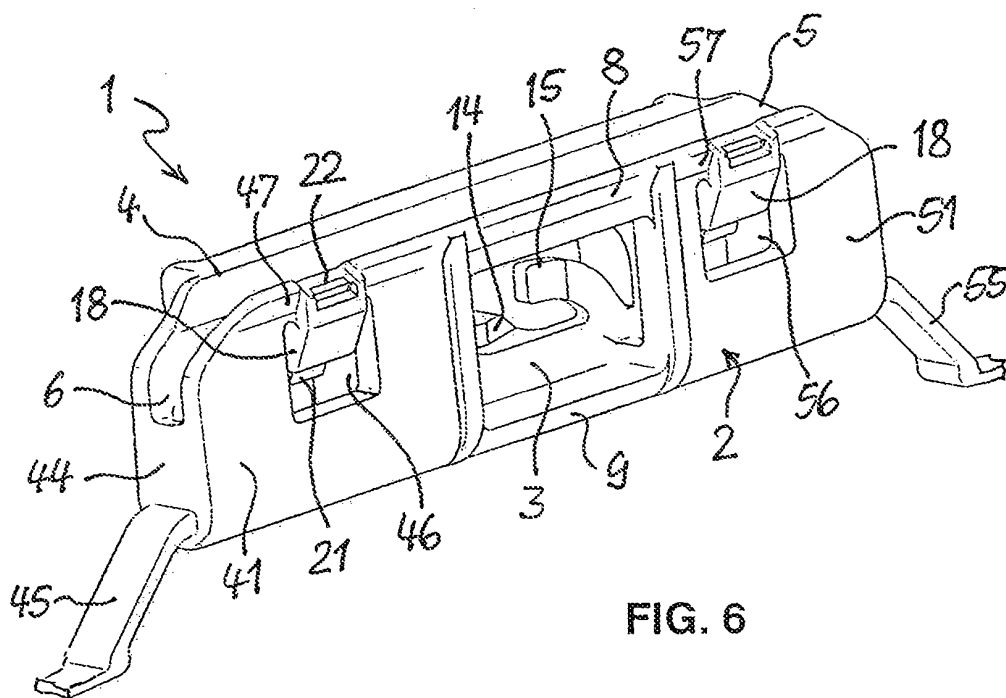


FIG. 6

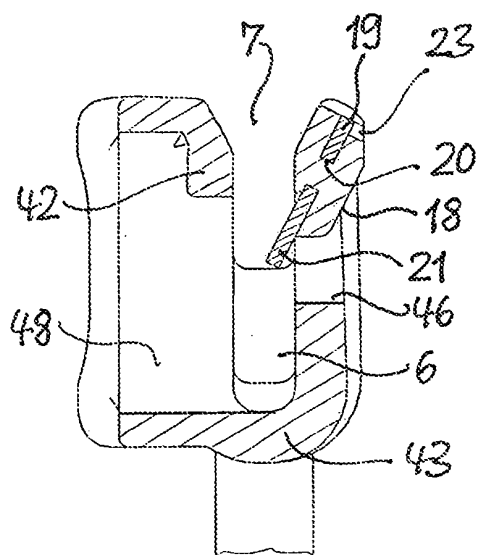


FIG. 7

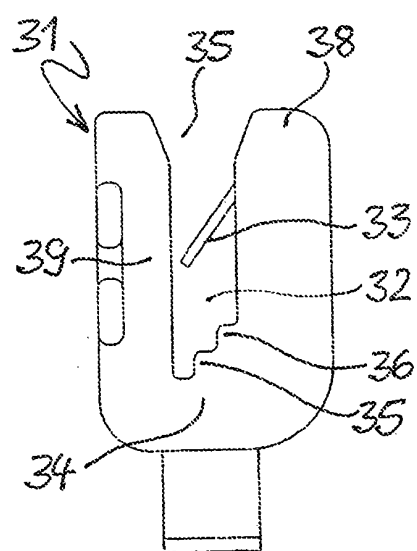


FIG. 8

REFERENCES CITED IN THE DESCRIPTION

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